REMARKS

Claims 1-36 are all the claims pending in the application.

I. Summary of Action

The Examiner maintains the position that claims 1-36 are unpatentable over the cited prior art under 35 U.S.C. § 103. In view of our arguments presented in the Response filed August 1, 2007, the Examiner asserts:

> 1. Both references are related to image processing. Holmes creates a spectrogram image, and Hartung encodes data contained in an image. Hartung is not specific as to what kinds of images are encoded, so there is sufficient motivation to combine the references, as cited in the rejections below. Furthermore, the process of converting an audio signal into a spectrogram is a form of encoding, as the original audio signal is no longer represented by the same values.
>
> 2. The spectrogram is merely a way of representing data graphically. Each pixel of the spectrogram corresponds to an energy value at a specific time and frequency. If one were to display the raw data value of each pixel, as opposed to a color or brightness gradient, then a time-frequency table would result. This is the same table that is contained in a computer that processes the spectrogram. The examiner contends that the time-frequency table is inherent in a spectrogram image.
>
> 3. While Hartung does teach adaptive bit allocation based on perceptual criteria of the human visual system, the conditional replenishment is not dependent on it. The conditional replenishment simply operates on whatever value is contained in each pixel, no matter how that value was obtained. Additionally, equation [1] of Hartung does calculate the Euclidian distance between two blocks. Abs[x(i,j,t) - x(i,j,t-1)] is a measure of the Euclidian distance between the two x values. If that value is less than a threshold, then a previous block is repeated. This repeated block is a nearest neighbor block, as it must have a value close to the current block. Also, the comparison of the two values in equation [1] constitutes a search, as the older value must be found and loaded into the equation.

II. Rejections under 35 U.S.C. § 103

A. Claims 1, 3-5, 7-12, 14, 16-22, 24, 26-28, 30-31 and 33-36

The Examiner rejects Claims 1, 3-5, 7-12, 14, 16-22, 24, 26-28, 30-31 and 33-36 under 35 U.S.C. 103(a) as being unpatentable over Hartung et al. ("Hartung") in view of Holmes et al. ("Holmes").

Claim 1

The Applicant's invention relates to a method of encoding an audio signal into a bitstream to be sent through the internet at a low bitrate while maintaining the original sound quality. In particular, claim 1 recites:

> A digital audio signal encoding method comprising:
> (a) based on an input audio signal, generating a time-frequency band table;
> (b) based on the generated time-frequency band table, searching for a nearest neighbor block of a block being currently encoded, and generating information on the nearest neighbor block; and
> (c) generating a bitstream containing the generated information on the nearest neighbor block.

The Examiner asserts that both Hartung and Holmes are related to image processing, and thus, combining their teachings meets the requirements of 35 U.S.C. § 103. Applicants respectfully disagree. Holmes relates a method of generating an image (i.e., a spectrogram) by analyzing the acoustic properties of speech signals via Fourier transforms. Thus, Holmes merely teaches a method of generating spectrograms by *plotting* a speech waveform so that the acoustic features can be interpreted (p. 23, paragraphs 1 and 2). Hartung, on the other hand, relates to a method of encoding images (i.e., video signals) into a bitstream for compressing the video signals at a low bit rate (Abstract and col. 1, lines 15-22). The references are absent of any teaching that would suggest combining the two methods (i.e., why a person skilled in the art

would utilize a method of generating a spectrogram to correct the deficiencies of a method of encoding a video signal). Moreover, there is no teaching in the cited art of how one skilled in the art would combine the method taught in Holmes to correct the deficiencies of the method taught in Hartung in view of the Applicants' invention. For example, Holmes does not appear to be reasonably pertinent to the problem addressed by Hartung (see, *In re Icon Health and Fitness*, No. 06-1573 (Fed. Cir. Aug. 1, 2007)).

Assuming *arguendo* that Hartung and Holmes are related to image processing, simply because two references are related to a broad field, such as image processing, does not mean that a person skilled in the art would look to one reference to correct the deficiencies of the other. That is, although the Examiner contends that both references are related to image processing, Applicants submit that the Examiner's position is not sufficient to suggest that one skilled in the art would be motivated to combine Hartung and Holmes. Hartung and Holmes are not related in function, principles or problems solved. The Examiner appears to be making his own conclusions based on the disclosure of the present Application instead of relying on what is taught or suggested in the cited art. That is, Applicants note that impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

The Examiner also asserts that Hartung is not specific as to what kinds of images are encoded. Applicants respectfully disagree. Hartung teaches "DYNAMIC BIT ALLOCATION FOR THREE-DIMENSIONAL SUBBAND VIDEO CODING" (see Title). In addition, the Abstract of Hartung recites "a method of coding a set of multi-level signals, such as video signals" and the field of the invention recites "digital encoding of video signals at low rates where the rate is fixed for each video frame." Furthermore, FIG. 1 of Hartung shows a

representation of a graphical image, e.g., sequential frames of a video image (col. 2, lines 44-45). A central feature of Hartung is an image encoder which employs adaptive bit allocation (col. 1, lines 40-43). Hartung teaches that a significant part of the dynamic bit allocation is to order the subbands of the image sequence based on their perceptual significance, in which the motion subband is the second most significant subband of the image sequence (col. 4, lines 11-19). Thus, the motion subband is allocated enough bits to encode the motion information (col. 4, lines 19-20). In view of the above, Hartung emphasizes encoding video images and in fact adapts the method of encoding to correlate with the features of a video image. In addition, Hartung makes no other mention of encoding other types of images. Therefore, Hartung clearly teaches that the images encoded are video images. Applicants note that the Examiner must consider all teachings, including any disclosure in the cited art that teach away from the claimed invention. The Examiner is improperly ignoring features that are central to the fundamental operation of Hartung (i.e., the encoding of a video image). The recited features are not obvious merely because a spectrogram (see Holmes) can be generated from an audio signal. There must be a teaching or suggestion to combine with the cited art. Thus, Applicants submit that there is no motivation to combine the references for this additional reason.

The Examiner also asserts that the process of converting an audio signal into a spectrogram is a form of encoding, as the original signal is no longer represented by the same values. Applicants note that MPEP § 2173.01 states that a fundamental principle contained in 35 U.S.C. §112, second paragraph, is that Applicants are their own lexicographers. They can define in the claims what they regard as their invention essentially in whatever terms they choose so long as any special meaning assigned to a term is clearly set forth in the specification. In the present case, it is clear from the language of claim 1 that the digital audio signal is being encoded

into a bitstream (e.g., generating a bitstream containing the generated information on the nearest neighbor block), and the Applicants are entitled to claim their invention using terms consistent with the usage in the specification. Although Applicants note that the claims are to be construed given their broadest reasonable interpretation, it appears that the Examiner's interpretation would exceed a reasonable interpretation of a person of ordinary skill in the art. Therefore, Holmes does not disclose encoding an audio signal as required by claim 1. That is, the generating of a spectrogram in Holmes is not a form of encoding within the scope of claim 1.

Furthermore, the Examiner asserts that spectrogram of Holmes is a way of representing data graphically, and the time-frequency table of claim 1 is inherent in a spectrogram image. However, there is no teaching or suggestion in Holmes to generate a time-frequency table by displaying the raw data value of each pixel of the spectrogram. Again, the Examiner should be reminded that impermissible hindsight should be avoided. Moreover, even if a time-frequency table would result as asserted by the Examiner, there is no teaching that the table would correlate into the time-frequency band table as claimed in the present invention. That is, there is no teaching in Holmes that displaying the raw data value of each pixel of a spectrogram would include blocks to be searched for a nearest neighbor block. Further, there is no teaching or suggestion in Holmes of generating a table which can be searched for obtaining information on a nearest neighbor block for generating a bitstream. Moreover, the Examiner concedes that Hartung fails to teach generating a time-frequency band table. Also, Hartung merely teaches determining whether a pixel is repeated from a previous frame by comparing whether the difference of an original pixel value and a previous pixel value is less than a threshold value (col. 3, lines 33-65). Thus, Hartung does not teach or suggest searching for a nearest neighbor block which has a value closest to the current block as asserted by the Examiner. A mere comparison

between two values is not a search among blocks within a table since the location of the previous pixel value is already known and merely loaded into equation 1. Therefore, since Hartung fails to teach generating the claimed time-frequency band table, it must also be silent on the features of claim 1 regarding searching of the claimed time-frequency table. Furthermore, there is no teaching in Holmes to correct this deficiency.

In view of the above, Holmes does not correct the deficiencies of Hartung. Therefore, Applicants submit that claim 1 would not have been t rendered obvious by the applied references for at least the above reasons.

Claim 3

Claim 3 recites that "nearest neighbor block information is index information of the nearest block, which is searched for, in the time-frequency band table." However, for reasons similar to those presented above in conjunction with claim 1, there is no teaching in Holmes that displaying the raw data value of each pixel of a spectrogram would include blocks to be searched for a nearest neighbor block. That is, there is no teaching in Holmes that displaying the raw data value of each pixel of a spectrogram would include blocks which are searched for a nearest neighbor block. Thus, there is no teaching or suggestion in Holmes of generating a table which can be searched for obtaining index information on a nearest neighbor block for generating a bitstream. Therefore, claim 3 should be patentable for at least these reasons.

Remaining claims

Since independent claims 7, 14, 17, 21, 26, 30 and 34 contain features similar to the features of claim 1, claims 7, 14, 17 21, 26, 30 and 34 are patentable for reasons analogous to those presented above in conjunction with claim 1.

Furthermore, Applicants submit that the remaining dependent claims (claims 3-5, 8-12, 16, 18-20, 22, 24, 27-28, 31, 33 and 35-36) are patentable at least by virtue of their dependencies.

B. Claims 2, 15, 23 and 32

The Examiner rejects claims 2, 15, 23 and 32 under 35 U.S.C. 103(a) as being unpatentable over Hartung in view of Holmes and in further view of Nakamura (US 6,226,325). However, Nakamura fails to correct the deficiencies of Hartung and Holmes presented above.

C. Claims 6, 13, 25 and 29

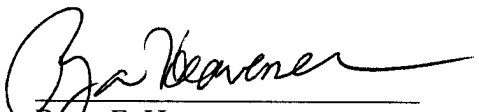
The Examiner rejects claims 6, 13, 25 and 29 under 35 U.S.C. 103(a) as being unpatentable over Hartung in view of Holmes and in further view of Zibman et al. (US 4,748,579 "Zibman"). However, Zibman fails to correct the deficiencies of Hartung and Holmes presented above.

III. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Ryan F. Heavener
Registration No. 61,512

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

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